

CLAIMS:

1. A method for assembling a fragmented packet with a firewalling device, comprising:
 - receiving fragments of the packet to the firewalling device;
 - sorting the fragments according to the packet and order of the fragments;
 - storing the fragments in association with the packet and in order;
 - collecting all the fragments to reconstitute the packet; and
 - assembling the fragments in order to reconstitute the packet.
2. The method, according to claim 1, further comprising:
 - obtaining source and destination address information for the fragments; and
 - determining if the source and destination address information of the fragments matches.
3. The method, according to claim 1, further comprising determining if the fragments have a valid checksum.
4. The method, according to claim 1, wherein the sorting comprises obtaining packet and fragment identifiers.
5. The method, according to claim 4, further comprising determining if any of

the fragments needed to reconstitute the packet have not been stored.

6. The method, according to claim 5, further comprising determining if the fragments stored collectively exceed a communication length threshold.
7. The method, according to claim 6, further comprising purging the fragments responsive to the communication length threshold being exceeded.
8. The method, according to claim 7, further comprising starting a timer in association with an initial one of the fragments received by the firewalling device.
9. The method, according to claim 8, further comprising checking whether all the fragments needed to reconstitute the packet have not been received to the firewalling device within a threshold time period.
10. The method, according to claim 1, wherein the storing comprises overwriting one of the fragments with a subsequently received fragment.
11. A method for assembling a fragmented packet within a firewalling device, comprising:
 - obtaining fragments of the packet by the firewalling device, each of the fragments having a packet identifier and a fragment identifier, each of the fragments have a source address and a destination address;
 - determining if the source address and the destination address is currently stored in association with the packet identifier;
 - reserving buffer memory space and starting a timer responsive to the

source address and the destination address not being currently stored;

responsive to the source address and the destination address being currently stored, determining for each of the fragments subsequently received after receipt of an initial fragment with the packet identifier whether a respective checksum for the fragments subsequently received is valid;

sorting the fragments according to the packet identifier and the fragment identifier; and

storing the fragments in the buffer memory space reserved in association with the packet identifier and in order according to the fragment identifier.

12. The method, according to claim 11, further comprising:

determining if all the fragments to reconstitute the packet have been stored; and

reconstituting the packet according using the fragments stored for the packet.

13. The method, according to claim 12, further comprising determining if any of the fragments needed to reconstitute the packet have not been stored.

14. The method, according to claim 12, further comprising determining if the fragments stored collectively exceed a communication length threshold.

15. The method, according to claim 14, further comprising clearing the buffer memory space reserved of any of the fragments responsive to the communication length threshold being exceeded.

16. The method, according to claim 15, further comprising checking whether all the fragments needed to reconstitute the packet have not been obtained by the firewalling device within a threshold time period.
17. The method, according to claim 16, further comprising clearing the buffer memory space reserved of any of the fragments responsive to the threshold time period being exceeded.
18. The method, according to claim 12, wherein the packet is reconstituted prior to interrogation.
19. The method, according to claim 11, wherein the fragments are physically stored in order within the buffer memory space reserved.
20. The method, according to claim 11, wherein the fragments are logically stored in order within the buffer memory space reserved.
21. The method, according to claim 11, wherein the fragments are Internet Protocol version four formatted packets.
22. An apparatus for assembling fragments, comprising:
 - first combinatorial logic for receiving a communication configured to:
 - determine status of the communication including identification of fragmented communication units, the fragmented communication units including constituent parts of a unit of communication;
 - sort the fragmented communication units according to

communication unit and fragment order;

memory for storing the fragmented communication units as sorted;

second combinatorial logic to reconstitute the unit of communication in the order stored responsive to obtaining all the fragmented communication units for reconstitution of the unit of communication.

23. A system for assembling fragments, comprising:

a host processing unit;

system memory coupled to the host processing unit;

a network interface coupled to the host processing unit, the network interface including a network processing unit, the network processing unit including:

first combinatorial logic for receiving a communication configured to:

determine status of the communication including identification of fragmented communication units, the fragmented communication units including constituent parts of a unit of communication;

sort the fragmented communication units according to communication unit and fragment order;

local memory for storing the fragmented communication units as sorted;

second combinatorial logic to reconstitute the unit of communication in the order stored responsive to obtaining all the fragmented communication units for reconstitution of the unit of communication.

24. The system, according to claim 23, wherein the host processing unit is part of a personal computer.

25. The system, according to claim 23, wherein the host processing unit is part of a firewalling device.

26. A signal-bearing medium containing a program which, when executed by a processor of a firewalling device, causes execution of a method comprising:

sorting fragments according to packet identifier and fragment identifier with the firewalling device;

storing the fragments in association with the packet identifier and the fragment identifier in local memory of the firewalling device; and

assembling by the firewalling device the fragments to reconstitute the packet.

27. An apparatus for assembling fragments, comprising:

first means for receiving a communication, the first means configured to:

determine status of the communication including identification of fragmented communication units, the fragmented communication units including constituent parts of a unit of communication;

sort the fragmented communication units according to communication unit and fragment order;

memory for storing the fragmented communication units as sorted;

second means for reconstituting the unit of communication in the order

stored responsive to obtaining all the fragmented communication units for reconstitution of the unit of communication.